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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/554,274	09/13/2006	Hans-Jurgen Albrecht	H06020/PCT/US	3094
31217	7590	07/22/2010	EXAMINER	
Loctite Corporation One Henkel Way Rocky Hill, CT 06067			COHEN, STEFANIE J	
			ART UNIT	PAPER NUMBER
			1793	
			MAIL DATE	DELIVERY MODE
			07/22/2010	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/554,274

**Applicant(s)**

ALBRECHT ET AL.

**Examiner**

STEFANIE COHEN

**Art Unit**

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 April 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 3, 7-9, 15, 19 and 26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 7-9, 15, 19 and 26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-06)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 3, 7-9, 15, 19 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Achari et al (5863493) in view of Chen et al (5538686).

Achari teaches a lead free solder composition comprising 91.5-96.5% tin, 2-5% silver, .1-3% nickel and 0-2.9% copper.

Although Achari teaches a lead free solder composition, Achari does not teach a lead free composition comprising bismuth or antimony.

Chen, col. 2 lines 19-26, teaches an article comprising a lead free solder comprising Bi and/or Sb, with the range of the former being 0-10 (preferably at most 5) weight %, and the range of the latter being 0-5 (preferably at most 3) weight %.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Bi and Sb in the amount as taught by Chen into the composition as taught by Achari because Chen teaches the addition of Bi and/or Sb can result in a refined alloy microstructure and reduced tendency for the formation of undesirable lower melting temperature phases.

Regarding claims 3, 7 and 15, Chen, col. 2 lines 19-26, teaches an article comprising a lead free solder comprising Bi and/or Sb, with the range of the former

being 0-10 (preferably at most 5) weight %, and the range of the latter being 0-5 (preferably at most 3) weight %.

Regarding claim 8, Achari teaches a lead free solder composition comprising .1-3% nickel.

### ***Response to Arguments***

Applicant's arguments filed 4/27/2010 have been fully considered but they are not persuasive.

The tables present in the argument are not submitted in a 132 declaration and thus are not be considered relevant in the arguments. Further, examiner do not see these charts present in the specification of either reference.

Applicant argues two different types of alloys are disclosed in the '493 patent and the '686 patent. Although this may be true, both teach a metal solder wherein the main component of the solder is tin. Therefore, it would be expected that the additions of metals would have the same effect on the solders even when comprising a small amount of different metals. Therefore, there is still motivation to include Bi and Sb as taught by '686 in the solder as taught by '493.

Further evidence would need to be disclosed to show the effect of the addition of Bi and Sb as taught by '686 into the solder as taught by '493.

Further, Gonya (5393489), col. 4, teaches a high temperature, lead-free, tin based solder composition comprising 93.5-94 wt% Sn, 2.5-3 wt% Ag, 1-2 wt% Bi, 1-2 wt% Sb and appx 1 wt% Cu.

Hwang (20020155024), paragraph 20 of the PGPUB, teaches a lead free solder alloy comprising at least 75 wt% Sn, .5-7 wt% Cu and .05-18 wt% Sb.

Gickler (5837191), col. 1, teaches a solder consisting essentially of, in weight %, about 0.75% to about 2% antimony, about 0.05% to about 0.6% copper, about 0.05% to about 0.6% silver, about 0.05% to about 0.6% nickel and balance essentially tin.

Kitajima (642891), col. 2, teaches forming soldered joints on the covered Cu electrodes, by using a solder material consisting of at least 2.0 wt % to less than 3 wt % of Ag, 0.5 to 0.8 wt % of Cu, and a balance of Sn and unavoidable impurities.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEFANIE COHEN whose telephone number is (571)270-5836. The examiner can normally be reached on Monday through Thursday 9:3am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Melvin Curtis Mayes can be reached on 5712721234. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Stefanie Cohen

7/14/2010

SC

July 19, 2010

/Melvin Curtis Mayes/  
Supervisory Patent Examiner, Art Unit 1793